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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,033

09/27/2005

Takanori Saito

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EXAMINER

WILSON, GREGORY A

ART UNIT

PAPER NUMBER

3749

MAIL DATE

DELIVERY MODE

03/19/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/551,033	<b>Applicant(s)</b> SAITO ET AL.	
	<b>Examiner</b> Gregory A. Wilson	<b>Art Unit</b> 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/4/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 5-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gat (6,727,474) in view of Kato (6,403,927)**. With regard to claims 5, 7 and 10, Gat discloses a thermal processing unit (10) for conducting a thermal process to a plurality of objects (14) in a tier like manner (Figure 1) in a processing container (12) made of metal (column 5, line 38-40) and includes a heating unit (36), a cooling gas introducing unit (18, 19) having a plurality of blowing holes formed in the pipe wall for blowing out the gas and is inserted into the container in a vertical direction (height) with the blowing holes formed at suitable intervals in the vertical direction of the pipe, a circular space (within element 33) formed between the container and the plurality of objects to be processed and furthermore includes a processing container (16) which a coolant flows. While Gat appears to anticipate the applicants invention in terms of function in that it provides a cooling gas pipe structure having multiple (unlabeled) blow holes, the applicant has amended the claims in an attempt to distinguish over the prior art reference by more clearly defining the direction in which the blow holes face, which allow for cooling gas to flow in a circumferential direction. While Gat appears to have blow holes that face in the radial direction when looking at Figure1, the specification

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does not teach a specific orientation of the blow holes. Additionally, upon further inspection of Figure 1, the spray nozzle (19) shows an unnumbered bottom hole which appears to have a different orientation than the other holes. One of ordinary skill in the art would recognize the orientation as being such that the gas will discharge tangentially or circumferentially. While it can be concluded that the spray nozzle of Gat is intended to allow for dispersement of gas flow through the plurality of openings, emphasis on the direction in which the gas flow is dispersed is not particularly conclusive. To modify the spray nozzle of Gat, such that the holes are oriented to induce a tangential or circumferential flow would solve the design need of rapidly and more uniformly cooling an object, the fact that it would have been obvious to try any number of nozzle orientations to achieve this desired result might show that a person having ordinary skill in the art would have found it obvious under 35 U.S.C 103 (KSR Int'l Co. v. Teleflex Inc.) to modify the gas nozzles of Gat such that gas flow is dispersed tangentially out of the pipe. With regard to claims 6, 8, 9 and 11-14, Gat discloses the applicants primary inventive concept as stated above, but with regard to claim 6, Gat does not particularly teach a plurality of cooling-gas introducing pipes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to increase the amount of cooling-gas introducing pipes since increasing the amount of essential working parts does not appear to solve any stated problem in a new or unexpected way or is for any particular purpose which would be unobvious to one having ordinary skill in the art. With regard to claims 9 and 11, Gat does not particularly disclose the volume of the structure nor the rate at which gas is introduced to achieve the cooling as specified

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in claim 11, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the flow rate of the gas flow as well as the volume of the container to meet the desired need, since it has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or workable range involves only routine skill in the art. With regard to claims 8, Gat discloses the applicants primary inventive concept, but does not describe the blowing holes as having a porous member. The applicant discloses in the specification (See page 11, line 9-17) that the function of the porous member is to reduce the flow rate of the cooling gas blown out from the holes. While Gat does not particularly teach this feature, Kato teaches the use of valves (16) connected to individual air flow channels for the purpose of controlling the flow rate of cooling gas. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the valves of Kato into the invention of Gat (specifically the cooling gas introducing unit 18, 19) for the purpose of controlling the flow therethrough since the valves of Kato serves as a functional equivalent to the applicants "porous member".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory A. Wilson whose telephone number is (571)272-4882. The examiner can normally be reached on 7 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory A. Wilson/  
Primary Examiner, Art Unit 3749  
March 14, 2008